

PATENT

Atty. Dkt. No. APPM/007034.P1/DSM/LOW K/JW

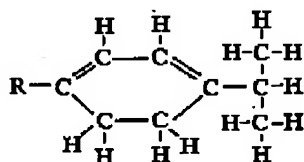
THE PENDING CLAIMS:

1. (Previously Presented) A method for depositing a dielectric film, comprising delivering a gas mixture comprising one or more linear, oxygen-free organosilicon compounds, one or more oxygen-free hydrocarbon compounds comprising one ring and one or two carbon-carbon double bonds in the ring, and one or more oxidizing gases comprising oxygen (O₂) to a substrate surface at deposition conditions sufficient to deposit a dielectric film comprising Si, O, and C on the substrate surface.
2. (Original) The method of claim 1, wherein the one or more linear, oxygen-free organosilicon compounds comprises an alkylsilane.
3. (Original) The method of claim 1, wherein the one or more linear, oxygen-free organosilicon compounds comprises a member selected from the group consisting of methylsilane, dimethylsilane, trimethylsilane, tetramethylsilane, ethylsilane, disilanomethane, bis(methylsilano)methane, 1,2-disilanoethane, 1,2-bis(methylsilano)ethane, 2,2-disilanopropane, diethylsilane, propylsilane, vinylmethylsilane, 1,1,2,2-tetramethyldisilane, hexamethyldisilane, 1,1,2,3,3-pentamethyltrisilane, 1,3-bis(methylsilano)propane, 1,2-bis(dimethylsilano)ethane, 1,3-bis(dimethylsilano)propane, and combinations thereof.
4. (Original) The method of claim 1, wherein the ring comprises five or six carbon atoms.
5. (Original) The method of claim 4, wherein the ring comprises six carbon atoms.
6. (Previously Presented) The method of claim 1, wherein the one or more oxidizing gases further comprises a member selected from the group consisting of ozone, carbon dioxide, carbon monoxide, water, nitrous oxide, 2,3-butanedione, and combinations thereof.

PATENT

Ally. Dkt. No. APPM007034.P1/DSM/LOW K/JW

7. (Previously Presented) The method of claim 6, wherein the one or more oxidizing gases consists of carbon dioxide and oxygen (O₂).
8. (Previously Presented) The method of claim 1, further comprising post-treating the dielectric film.
9. (Original) The method of claim 1, wherein the one or more linear, oxygen-free organosilicon compounds comprises trimethylsilane and the one or more oxygen-free hydrocarbon compounds comprises alpha-terpinene.
10. (Previously Presented) The method of claim 9, wherein the one or more oxidizing gases consists of carbon dioxide and oxygen (O₂).
11. (Previously Presented) A method for depositing a dielectric film, comprising delivering a gas mixture comprising one or more linear, oxygen-free organosilicon compounds, one or more oxygen-free hydrocarbon compounds including the structure:



wherein R is selected from the group consisting of linear alkane groups having one to five carbons, and one or more oxidizing gases comprising oxygen (O₂) to a substrate surface at deposition conditions sufficient to deposit a dielectric film comprising Si, O, and C on the substrate surface.

12. (Original) The method of claim 11, wherein the one or more oxygen-free hydrocarbon compounds comprises alpha-terpinene.

PATENT

Atty. Dkt. No. APPM/007034.P1/DSM/LOW K/JW

13. (Original) The method of claim 11, wherein the one or more linear, oxygen-free organosilicon compounds comprises a member selected from the group consisting of methylsilane, dimethylsilane, trimethylsilane, tetramethylsilane, ethylsilane, disilanomethane, bis(methylsilano)methane, 1,2-disilanoethane, 1,2-bis(methylsilano)ethane, 2,2-disilanopropane, diethylsilane, propylsilane, vinylmethylsilane, 1,1,2,2-tetramethyldisilane, hexamethyldisilane, 1,1,2,3,3-pentamethyltrisilane, 1,3-bis(methylsilano)propane, 1,2-bis(dimethylsilano)ethane, 1,3-bis(dimethylsilano)propane, and combinations thereof

14. (Original) The method of claim 11, wherein the linear alkane groups having one to five carbons are selected from the group consisting of methyl, ethyl, propyl, and isopropyl groups.

15. (Previously Presented) The method of claim 11, wherein the one or more oxidizing gases further comprises a member selected from the group consisting of ozone, carbon dioxide, carbon monoxide, water, nitrous oxide, 2,3-butanedione, and combinations thereof.

16. (Previously Presented) The method of claim 11, further comprising treating the dielectric film with an electron beam.

17. (Previously Presented) A method for depositing a dielectric film, comprising:
delivering a gas mixture comprising:
 one or more linear, oxygen-free organosilicon compounds;
 one or more oxygen-free hydrocarbon compounds comprising one ring
and one or two carbon-carbon double bonds in the ring;
 and one or more oxidizing gases comprising oxygen (O₂) to a substrate
surface at deposition conditions sufficient to deposit a dielectric film comprising Si, O,
and C on the substrate surface; and
treating the dielectric film with an electron beam.

PATENT

Ally. Dkt. No. APPM007034.P1/DSM/LOW K/JW

18. (Original) The method of claim 17, wherein the one or more linear, oxygen-free organosilicon compounds comprises a member selected from the group consisting of methylsilane, dimethylsilane, trimethylsilane, tetramethylsilane, ethylsilane, disilanomethane, bis(methylsilano)methane, 1,2-disilanoethane, 1,2-bis(methylsilano)ethane, 2,2-disilanopropane, diethylsilane, propylsilane, vinylmethylsilane, 1,1,2,2-tetramethyldisilane, hexamethyldisilane, 1,1,2,3,3-pentamethyltrisilane, 1,3-bis(methylsilano)propane, 1,2-bis(dimethylsilano)ethane, 1,3-bis(dimethylsilano)propane, and combinations thereof.

19. (Original) The method of claim 17, wherein the one or more oxygen-free hydrocarbon compounds comprises alpha-terpinene.

20. (Previously Presented) The method of claim 19, wherein the one or more linear, oxygen-free organosilicon compounds comprises trimethylsilane and the one or more oxidizing gases comprises carbon dioxide and oxygen (O₂).